Top-10 tips for writing a paper



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1: Every paper tells a story

- what is the "elevator pitch" of your story? elevator pitch = summary that is short enough to give during an elevator ride
- the story is not what you did, but rather
 - what you show, new ideas, new insights
 - why interesting, important?
- why is the story of interest to others?
 - universal truths, hot topic, surprises or unexpected results?
- □ know your story!

2. Write top down

- computer scientists (and most human beings) think this way!
- state broad themes/ideas first, then go into detail
 context, context
- even when going into detail ... write top down!

3 Introduction: crucial, formulaic

- if reader not excited by intro, paper is lost
- recipe:
 - para. 1: motivation: broadly, what is problem area, why important?
 - para. 2: narrow down: what is problem you specifically consider
 - para. 3: "In the paper, we": most crucial paragraph, tell your elevator pitch
 - para. 4: how different/better/relates to other work
 - para. 5: "The remainder of this paper is structured as follows"

4. Master the basics of organized writing

- paragraph = ordered set of topically-related sentences
- lead sentence
 - sets context for paragraph
 - might tie to previous paragraph
- sentences in paragraph should have logical narrative flow, relating to theme/topic
- don't mix tenses in descriptive text
- one sentence paragraph: warning!

5. Put yourself in place of the reader

- □ less is more:
 - "I would have sent you less if I had had time"
 - * take the time to write less
- readers shouldn't have to work
 - won't "dig" to get story, understand context, results
 - need textual signposts to know where 'story" is going, context to know where they are
 - good: "e.g., Having seen that ... let us next develop a model for Let Z be"
 - bad: "Let Z be"
- what does reader know/not know, want/not want?
 - write for reader, not for yourself

6. Put yourself in place of the reader

- page upon page of dense text is no fun to read
 - avoid cramped feeling of tiny fonts, small margins
 - create openess with white space: figures, lists
- enough context/information for reader to understand what you write?
 - no one has as much background/content as you
 - no one can read your mind
 - all terms/notation defined?

7. No one (not even your mother) is as interested in this topic as you

- so you had better be (or appear) interested
- tell readers why they should be interested in your "story"
- don't overload reader with 40 graphs:
 - think about main points you want to convey with graphs
 - can't explore entire parameter space
- don't overload reader with pages of equations
 - put long derivations/proofs in appendix, provide sketch in body of paper

8. State the results carefully

- clearly state assumptions (see overstate/understate your results)
- experiment/simulation description: enough info to nearly recreate experiment/description
- simulation/measurements:
 - statistical properties of your results (e.g., confidence intervals)
- are results presented representative?
 - or just a corner case that makes the point you want to make

9. Don't overstate/understate your results

- overstatement mistake:
 - "We show that X is prevalent in the Internet"
 - * "We show that X is better than Y" when only actually shown for one/small/limited cases
- understatement mistake: fail to consider broader implications of your work
 - if your result is small, interest will be small
 - "rock the world"

10. Study the art of writing

- writing well gives you an "unfair advantage"
- writing well matters in getting your work published in top venues
- highly recommended:
 - The Elements of Style, W. Strunk, E.B. White, Macmillan Publishing, 1979
 - Writing for Computer Science: The Art of Effective Communication, Justin Sobel, Springer 1997.
- who do you think are the best writers in your area: study their style

11. Good writing takes times

- □ give yourself time to reflect, write, review, refine
- give others a chance to read/review and provide feedback
 - get a reader's point of view
 - find a good writer/editor to critique your writing
- starting a paper three days before the deadline, while results are still being generated, is a nonstarter